

STOCKPILE REPORT

to the Congress



JULY - DECEMBER 1963

**EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF EMERGENCY PLANNING
WASHINGTON, D. C. 20504**

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OFFICE OF EMERGENCY PLANNING
WASHINGTON 25, D.C.

OFFICE OF THE DIRECTOR

May 11, 1964

Honorable Carl Hayden
President pro tempore of the Senate

Honorable John W. McCormack
Speaker of the House of Representatives

Sirs:

Pursuant to Section 4 of the Strategic and Critical Materials Stock Piling Act, Public Law 520, 79th Congress, there is presented herewith the semi-annual report to the Congress on the strategic and critical materials stockpiling program for the period July 1 to December 31, 1963.

A statistical supplement to this report was transmitted to you on March 12, 1964.

Sincerely,

A handwritten signature in dark ink, appearing to read "Edward A. McDermott", is written over a horizontal line.

Edward A. McDermott
Director

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Summary

This report covers principal activities in stockpile planning and management for the period July 1 through December 31, 1963, under the provisions of Public Law 520 (79th Congress), The Strategic and Critical Materials Stock Piling Act.

Within the framework of recommendations contained in the Executive Stockpile Committee report to the President, entitled *Disposing of Excess Stockpile Materials*, the Director of the Office of Emergency Planning established the Interdepartmental Disposal Committee to make preliminary investigations of all aspects of the proposed disposal of any material and to make recommendations dealing with the development of long-range disposal plans. Working groups have been established under the Interdepartmental Disposal Committee to compile the necessary information to be used in determining the appropriate action to be undertaken on each commodity under review.

During the report period, OEP completed the initial portion of the study designed to develop rough estimates of the potential supply of and requirements for resources following a nuclear attack on the United States. The results of this phase of the study, together with guidance and instructions for carrying out the next phase, were transmitted to those Federal agencies having responsibilities for the supply, control, and distribution of resources during emergency periods. Each such agency is analyzing in more detail and depth the probable supply of, and requirements for, the resources under its cognizance.

At the end of the report period, the strategic stockpile inventory of specification-grade materials for which there are stockpile objectives was valued at \$5,411,000,000, on the basis of December 31, 1963 market prices. Application of the inventory to the stockpile objectives is shown in Chart 1. Total Government inventories of the specification-grade materials were valued at \$7,318,000,000.

During July-December 1963, sales commitments of surplus materials amounted to \$67.2 million. Of this amount, disposals from the National Stockpile totaled \$52.8 million and disposals from the Defense Production Act inventory accounted for \$14.4 million.

A total of 28 barter contracts for strategic and critical materials, valued at approximately \$66.1 million, were negotiated during the report period.

Introduction

Through the establishment of the Interdepartmental Disposal Committee, the Office of Emergency Planning has given priority attention to the review of long-range disposal programs for the inventories of materials in excess of objectives during the period covered by this report.

LONG-RANGE DISPOSAL PROGRAM

In accordance with the recommendations contained in the Executive Stockpile Committee report on *Disposing of Excess Stockpile Materials*, approved by the President on January 30, 1963, the Director of OEP, in August 1963, established the Interdepartmental Disposal Committee to make preliminary investigations of all aspects of the proposed disposal of any material, recommend factors and criteria for disposal, and perform certain other functions dealing with the development of long-range disposal programs. At the request of the Director, interested departments and agencies appointed representatives to serve on this Committee. These appointments were completed in late September and the first meeting of the Interdepartmental Disposal Committee was held October 11, 1963.

The Committee, chaired by OEP, consists of representatives from the Departments of State, Defense, the Interior, Agriculture, Commerce, and Labor, the General Services Administration, Small Business Administration, and the Agency for International Development. The Atomic Energy Commission, the Bureau of the Budget, and the Treasury Department participate as observers.

A subcommittee, chaired by the General Services Administration and composed of representatives from the Departments of State, Defense, Commerce, and Interior (or Agriculture when an agricultural commodity is involved), serves as a steering committee.

The Committee and its subcommittee are attempting to resolve the many issues that must be considered in establishing disposal programs if undue effects upon various segments of the domestic economy and our international relations are to be avoided. The two groups held a total of 16 meetings by December 31, 1963.

The principal functions and activities carried on by the Committee and its subcommittee include:

- (a) recommendation of operating procedures and guidelines for long-range disposal programming;
- (b) recommendation of materials excess to National Stockpile objectives for long-range disposal consideration;

- (c) review of basic data sheets and special information required by the subcommittee from the ad hoc working groups covering production, consumption, markets, and other economic factors for each commodity selected for analytical study;
- (d) recommendation of specific criteria to be applied with respect to each commodity under disposal consideration; and
- (e) recommendation as to scope, the rate of sale, and other pertinent data relating to the individual disposal program.

As of December 31, 1963, 15 working groups had been established under the Interdepartmental Disposal Committee to compile the statistical, technical, and economic data required by its subcommittee as a basis for determining the appropriate action to be undertaken on each commodity under review. Interested agencies have cooperated fully in providing qualified individuals on an ad hoc basis to participate in these analytical studies.

In order that groups which will be affected by the disposal programs will have an opportunity to express their comments and that their views will be given due consideration in the development of any plan, responsible Government agencies will be expected to undertake appropriate consultations with producers, processors, consumers, and foreign governments during the formative stage of each disposal program. The extent, nature, and formality of these consultations will be determined on a commodity-by-commodity basis to assure the most feasible way to achieve these objectives. OEP recognizes that an exchange of views can be mutually beneficial in working out an effective long-range program.

SUPPLY-REQUIREMENTS STUDIES-- CONVENTIONAL WAR

In the Stockpile Report to the Congress covering the period January-June 1963, it was reported that 12 supply-requirement reviews of stockpile materials had been completed and new objectives established. Additional studies were completed during July and August; however, a difference of opinion arose within the Executive departments with respect to the emergency availability of supply sources, the calculation of mobilization requirements and other factors. Due to the importance of the issues involved, the Director, in September 1963, established an ad hoc interagency committee to study all aspects of the situation. The committee made its

report to the Director and he submitted his recommendations on the issues to the President on December 19, 1963.

A resolution of the issues involved will permit OEP to move ahead with the reviews of stockpile materials early in the third quarter of fiscal year 1964.

Under the General Instructions and Economic Guidelines for Computing the Supplies and Requirements for Resources for a Conventional War developed by the Office of Emergency Planning for planning purposes, studies of all required resources and services except transportation have been completed. The Office of Emergency Transportation, Department of Commerce, is continuing work on its analysis of the transportation situation. It is expected that this study will be completed by the end of fiscal year 1964.

SUPPLY-REQUIREMENTS STUDIES-- NUCLEAR WAR

In September 1963, the Office of Emergency Planning completed the initial part of the study designed to develop rough estimates of the potential supply of and requirements for resources following a nuclear attack on the United States.

The estimated postattack capabilities upon which the supply estimates were based reflect the extent to which the normal contributions of various sectors of the economy to the nation's output of goods and services might be degraded following a nuclear attack. These capabilities, in turn, were derived from a study of Nuclear Attack Hazards in the Continental United States prepared by the National Resources Evaluation Center. This study sets forth the possibilities of damage to the various supply sources from which flow the goods and services required to support the economy and expresses them in terms of probabilities. The magnitude and severity of the destruction that might be incurred in an attack can thereby be related to the possibility that such a level of destruction might occur.

After selection of an appropriate probability level, the phased capabilities for each of the major sectors of the economy--such as agriculture, mining, and transportation--or subdivisions thereof were modified to reflect the ability of each sector to support other sectors. Thus, the surviving capabilities of the mining industry were reduced in the first postattack quarter year because of the assumed lack of power. Prior to performing the highly complex analyses involved in evaluating these inter-industry relationships, it was necessary to update the last complete set of inter-industry factors that had been completed in 1947. As the study progresses and is refined, the more detailed and accurate data on these relationships, currently under preparation by the Office of Business Economics in the Department of Commerce, will be substituted for the OEP data.

The modified phased capabilities were compared with estimates of the postattack needs for the civilian economy, for the Government including military operations, and for essential exports. Critical deficits in capabilities in essential areas disclosed by these comparisons were next reduced or eliminated through the formulation of feasible phased rehabilitation or reconstruction programs.

Following the development of these broad evaluations of the potential status of the supply of and requirements for major resources in a postattack environment, those Federal departments and agencies having responsibility for various individual resources initiated detailed analyses within their assigned areas. These efforts will pinpoint potential critical shortages in specific resources and methods whereby such shortages can be alleviated. As of December 31, 1963, most of the subsidiary studies were well under way.

After the interested departments and agencies have completed their evaluations in 1964, the Office of Emergency Planning will, with departmental assistance, develop feasible integrated, balanced programs for the postattack economy. These programs, after further refinement, will provide the basis on which stockpile objectives for nuclear war may be determined.

Summary of Government Inventories of Strategic and Critical Materials

On December 31, 1963, the strategic materials held in all Government inventories amounted to \$8.6 billion at acquisition cost and \$7.6 billion at estimated market value. Of this total, \$5.8 billion at cost was in the National Stockpile, \$1.5 billion in the Defense Production Act inventory, \$1.3 billion in the Supplemental Stockpile, and \$24 million in the Commodity Credit Corporation inventory. Of the total materials in Government inventories, \$5.0 billion at cost and \$4.1 billion at estimated market value are considered to be in excess of stockpile objectives. Over 80 percent of the total excess is made up of 12 materials—aluminum,

metallurgical grade chromite, cobalt, copper, lead, metallurgical grade manganese, molybdenum, nickel, rubber, tin, tungsten, and zinc.

The following table is a summary of the materials carried in each of the Government inventories, including the quantities in excess of stockpile objectives. It shows the acquisition cost and estimated market value of the materials (1) having stockpile objectives and meeting stockpile specifications, (2) having stockpile objectives and not meeting stockpile specifications, and (3) not having stockpile objectives.

Summary of Government Inventories, December 31, 1963

(Stockpile objective: Market value, \$3,513,784,100)

	Total inventory		Excess to stockpile objectives	
	Acquisition cost	Market value*	Acquisition cost	Market value*
A. Inventories having stockpile objectives:				
(1) Meeting stockpile specifications:				
National Stockpile.....	\$5,621,777,600	\$5,410,789,300	\$2,405,584,200	\$2,254,127,000
Supplemental Stockpile.....	1,268,236,400	1,147,128,300	1,064,668,000	939,407,500
Defense Production Act.....	1,111,411,600	745,952,300	904,322,900	648,404,800
Commodity Credit Corporation.....	14,633,600	13,719,900	2,591,900	2,844,600
Total.....	8,016,059,200	7,317,589,800	4,377,167,000	3,844,783,700
(2) Not meeting stockpile specifications:				
National Stockpile.....	103,688,000	52,151,100	103,688,000	52,151,100
Supplemental Stockpile.....	8,300,900	4,287,400	8,300,900	4,287,400
Defense Production Act.....	280,633,800	93,482,600	280,633,800	93,482,600
Commodity Credit Corporation.....	234,000	182,000	234,000	182,000
Total.....	392,856,700	150,103,100	392,856,700	150,103,100
B. Inventories not having stockpile objectives:				
National Stockpile.....	31,050,500	24,461,100	31,050,500	24,461,100
Supplemental Stockpile.....	52,582,300	51,587,200	52,582,300	51,587,200
Defense Production Act.....	91,528,100	28,735,900	91,528,100	28,735,900
Commodity Credit Corporation.....	8,807,800	8,960,600	8,807,800	8,960,600
Total.....	183,968,700	113,744,800	183,968,700	113,744,800
C. Summary				
National Stockpile.....	5,756,516,100	5,487,401,500	2,540,322,700	2,330,739,200
Supplemental Stockpile.....	1,329,119,600	1,203,002,900	1,125,551,200	995,282,100
Defense Production Act.....	1,483,573,500	888,170,800	1,276,484,800	770,623,100
Commodity Credit Corporation.....	23,675,400	22,862,500	11,633,700	11,987,200
Total Inventory.....	8,592,884,600	7,581,437,700	4,953,992,400	4,108,631,600

*Market values are computed from prices at which similar materials are being traded currently; or, in the absence of current trading, an estimate of the price which would prevail in commercial markets. The values are generally unadjusted for normal premiums and discounts relating to contained qualities so that market values are understated for materials such as metal grade bauxite to the extent that the inventories are of premium quality. The value does not necessarily reflect the amount that would be realized at time of sale.

Source: General Services Administration.

STATUS OF STOCKPILE OBJECTIVES

On December 31, 1963, materials of stockpile grade held in the National Stockpile approximately equaled or exceeded the objectives for 52 of the 76 stockpile materials. The inclusion of other Government inventories would increase the objectives approximately equaled or exceeded to 64. The additional stockpile grade materials on order for all inventories would further increase the objectives approximately equaled or exceeded to 68. Sub-objectives for 26 upgraded forms of these basic materials have been assigned within these objectives.

The chart below shows the estimated market value for the objectives established and the extent to which materials on hand in and on order for the stockpile meet these objectives. The figures do not include other Government inventories or the quantities of materials in the stockpile having stockpile objectives and meeting stockpile specifications which are in excess of objectives (\$2.3 billion), materials in the stockpile for which there are no stockpile objectives (\$24.5 million), and materials in the stockpile which do not meet stockpile specifications (\$52.2 million).

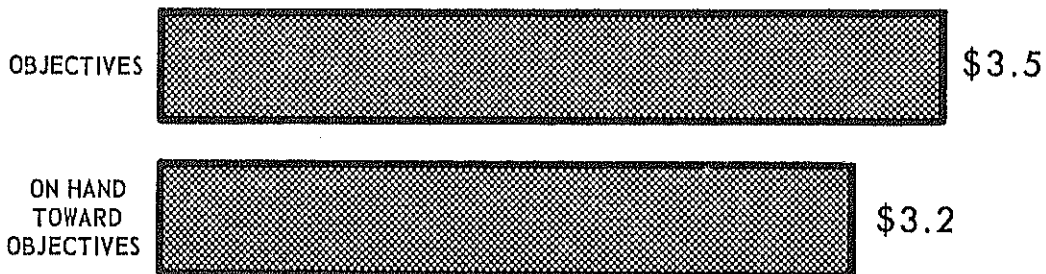
CHART 1

STATUS OF STOCKPILE OBJECTIVES

AS OF DECEMBER 31, 1963

(In Billions of Dollars)

MARKET VALUE



The list of strategic and critical materials for stockpiling is shown in the following table. Achievement of stockpile objectives is shown in this table only if the materials are actually in the National Stockpile. Footnotes indicate when materials in other Government inventories and on order, if

combined with National Stockpile quantities, would complete the stockpile objectives. Also footnoted are those materials for which upgrading objectives in effect as of December 31, 1963, had not been achieved.

*Stockpile Objectives Completed, Strategic and
Critical Materials (Specification Grade)*

December 31, 1963

Materials	Inventory equals or exceeds objective
Aluminum.....	x
Aluminum oxide, fused, crude.....	x
Antimony.....	
Asbestos, amosite.....	(2)
Asbestos, chrysotile.....	
Bauxite, metal grade, Jamaica type.....	(1)
Bauxite, metal grade, Surinam type.....	(1)
Bauxite, refractory grade.....	x
Beryl.....	x
Bismuth.....	(1)
Cadmium.....	x
Castor oil.....	x
Celestite.....	(2)
Chromite, chemical grade.....	x
Chromite, metallurgical grade.....	x
Chromite, refractory grade.....	
Cobalt.....	x
Columbium.....	(3) x
Copper.....	(3) x
Cordage fibers, abaca.....	x
Cordage fibers, sisal.....	x
Corundum.....	x
Diamond dies, small.....	
Diamond, industrial: Crushing bort.....	x
Diamond, industrial: Stones.....	(1)
Feathers and down, waterfowl.....	x
Fluorspar, acid grade.....	x
Fluorspar, metallurgical grade.....	x
Graphite, natural--Ceylon, amorphous lump.....	x
Graphite, natural--Madagascar, crystalline.....	x
Graphite, natural--Other than Ceylon and Madagascar, crystalline.....	x
Hyoscyne.....	x
Iodine.....	(2)
Jewel Bearings.....	
Kyanite-Mullite.....	x
Lead.....	x
Magnesium.....	x
Manganese, battery grade, natural ore...	x
Manganese, battery grade, synthetic dioxide.....	x
Manganese, chemical grade, type A ore...	x
Manganese, chemical grade, type B ore...	(1)
Manganese, metallurgical grade.....	(1) (3)
Mercury.....	
Mica, muscovite block, stained A/B and better.....	(1)
Mica, muscovite film, first and second qualities.....	(1)
Mica, muscovite splittings.....	x
Mica, phlogopite block.....	x
Mica, phlogopite splittings.....	x
Molybdenum.....	x
Nickel.....	x
Opium.....	(3) x
Platinum group metals, iridium.....	x
Platinum group metals, palladium.....	(1)
Platinum group metals, platinum.....	x
Pyrethrum.....	x

Materials	Inventory equals or exceeds objective
Quartz crystals.....	x
Quinidine.....	x
Rare earths.....	x
Rubber, crude, natural.....	x
Rutile.....	(1)
Sapphire and ruby.....	
Selenium.....	(2)
Shellac.....	x
Silicon carbide, crude.....	(1)
Silk noils.....	x
Silk, raw.....	
Sperm oil.....	x
Talc, steatite, block and lump.....	x
Tantalum.....	(1) (3)
Tin.....	x
Tungston.....	(3) x
Vanadium.....	x
Vegetable tannin extract, chestnut.....	x
Vegetable tannin extract, quebracho.....	x
Vegetable tannin extract, wattle.....	x
Zinc.....	x

¹Sufficient quantities are on hand in total Government-owned inventories to complete the objectives.

²Total quantities on hand in and on order for all Government-owned inventories are virtually sufficient to complete the objectives.

³Although total quantities are equal to the maximum objective, the upgrading program has not been completed.

**OTHER MATERIALS IN THE
NATIONAL STOCKPILE**

In addition to specification-grade materials, the National Stockpile contains (1) nonspecification grades of materials for which there are stockpile objectives, and (2) materials that have been removed from the stockpile list and others for which no objectives were established. The amounts of each of these materials on hand as of December 31, 1963 are indicated in the following tables.

Most of the nonspecification-grade materials were acquired by transfer of Government-owned surpluses to the stockpile after World War II. Others were accepted as contract termination inventories. Several were of specification grade when acquired but no longer qualify due to changes in industry practices and other technological advances. Some materials were purchased early in the stockpile program with a view of upgrading them to usable form under emergency conditions. Materials for which there are no stockpile objectives represent those items which are retained in the stockpile, but have been removed from the stockpile list when it became clear that (1) there would not be a deficit between the supply and requirements in time of national emergency, or (2) the material is no longer considered essential for defense purposes. This latter determination has been based on shifts in weapons systems, development of new materials, and technological improvements.

National Stockpile Inventories, Nonspecification Grades of Materials for Which There are Stockpile Objectives*

As of December 31, 1963

Material	Unit	Quantity
Aluminum.....	ST	1,787
Bismuth.....	Lb.	36,580
Cadmium.....	Lb.	486,711
Celestite.....	SDT	28,816
Chromite, metallurgical grade..	SDT	190
Columbium.....	Lb.	1,370,355
Diamond dies, small.....	Pc.	8,371
Fluorspar, acid grade.....	SDT	4,960
Graphite, Madagascar, crystalline.....	ST	1,332
Graphite, other than Ceylon and Madagascar, crystalline.....	ST	672
Jewel bearings.....	Pc.	14,715,973
Magnesium.....	ST	943
Manganese, metallurgical grade	SDT	621,304
Mica, muscovite, block, stained A/B and better.....	Lb.	347,600
Mica, muscovite film, 1st and 2d qualities.....	Lb.	23,674
Mica, phlogopite block.....	Lb.	206,520
Opium, alkaloid and salts.....	Av.Lb.	2,180
Platinum group metals, platinum	Troz.	33
Quartz crystals.....	Lb.	750,854
Talc, steatite block and lump..	ST	40
Tantalum.....	Lb.	1,885,740
Tungsten.....	Lb.	16,229,734

*Quantities may be shown on this table and also on the disposal table when sales commitments have been made, but the material has not moved out of inventory.

Source of data: General Services Administration.

National Stockpile Inventories, Materials for Which There Are No Stockpile Objectives*

As of December 31, 1963

Material	Unit	Quantity
Asbestos, crocidolite (soft)....	ST	1,567
Coconut oil.....	Lb.	48,096,398
Diamond dies, other than small..	Pc.	355
Diamond tools.....	Pc.	64,178
Mica, muscovite block, stained B and lower.....	Lb.	4,609,211
Mica, muscovite film, 3d quality	Lb.	504,741
Palm oil.....	Lb.	20,641,287
Platinum group metals, Rhodium..	Troz.	618
Quinine.....	Oz.	5,477,732
Silk waste.....	Lb.	81,272
Talc, steatite, ground.....	ST	3,901
Zirconium ore, baddeleyite.....	SDT	16,533
Zirconium ore, zircon.....	SDT	2,152

*Quantities may be shown on this table and also on the disposal table when sales commitments have been made, but the material has not moved out of inventory.

Source of data: General Services Administration.

National Stockpile Activities

PROCUREMENT AND UPGRADING

The Strategic Stockpile Procurement Directive for fiscal year 1964 provided for the cash purchase of only one material—jewel bearings. The Directive also provided for the upgrading of certain stockpile materials to columbium metal, columbium carbide powder, tantalum metal, tantalum carbide powder, and oxygen-free high conductivity copper. Surplus materials held in Government inventories will be used as payment-in-kind to cover the processing and transportation costs for upgrading these materials. All other acquisitions scheduled for the National Stockpile—antimony, chrysotile asbestos, refractory grade chromite, and small diamond dies—will be procured through barter.

During the July-December 1963 period, new lower prices for jewel bearings were approved and incorporated in the existing "Official U.S. Government Jewel Bearing Price List." These price reductions became effective on August 1, 1963. Subsequently, a further reduction of approximately 25% in the prices charged to Defense Department contractors and subcontractors for military standard bearings was found to be feasible and was put into effect. The set-up charges for production of these types of bearings were also eliminated at the same time.

Progress on expanding and modernizing the facility at Rolla, North Dakota, is continuing. Steps to acquire the land and building, which are owned by the Rolla Civic Improvement Association, have been initiated and design of the new building is under way. Action has also been taken to determine the means whereby the latest, most modern equipment for the production of jewel bearings can be acquired.

Under two contracts executed in late fiscal year 1963, 250,000 pounds of the 469,000 pounds of columbium and tantalum bearing materials designated for upgrading to approximately 156,000 pounds of columbium and tantalum metal and carbide powders have been placed in process. Tenders of 1,440 pounds of tantalum metal and 12,600 pounds of tantalum carbide powders have been made for return to the stockpile. Payment for the processing and transportation costs of these materials involved in the contracts is being made with 405,515 pounds of surplus tungsten concentrates and approximately 4,000,000 pounds of ferronickel from the DPA inventory.

Due to increased performance demands upon capacitors, consideration is being given to changes in capacitor grade tantalum powder specifications. As a result, action looking toward a new contract

to cover the quantities included in the FY 1964 upgrading directive has been suspended.

Deliveries of oxygen-free high conductivity copper, certified grade under conversion contracts amounted to 4,022 short tons. Payment for the conversion and all transportation costs involved are made in materials in excess to defense requirements.

The General Services Administration reports that the Defense Production Act contract with the Harvey Aluminum, Inc. was completed in September 1963. A total of 182,857 tons of aluminum, with a cost of \$90,093,000, was delivered to the Government under the contract.

On October 10, 1963, by mutual agreement, contracts for nickel and cobalt with the Cuban American Nickel Company and the Freeport Sulphur Company were terminated. The contracts provided for the production from mines at Moa Bay, Cuba, and provided that a maximum of \$248 million worth of nickel and cobalt could be "put" to the Government if the metals could not be sold to industry during the period ending June 30, 1965. The Cuban Government seized the companies' properties at about the time production was commencing, and, in view of the continuing situation in Cuba, it has been determined that further performance under the contracts is no longer possible. Actual deliveries were limited to 308,000 pounds of cobalt, with a cost of \$617,000. No deliveries of nickel were made.

During the report period, all of the DPA supply contracts had been completed or terminated with the exception of the Hanna Nickel Smelting Company contract. Although no deliveries have been made to the Government under this contract since October 1961, there remained a total of about 17 million pounds of nickel, with a contract cost of \$9.8 million as of December 31, 1963, which Hanna had the right to deliver by June 30, 1965. (This contract was terminated in March 1964.) On November 8, 1963, the Department of Justice filed a civil suit against the Hanna Mining Company and the Hanna Nickel Smelting Company to recover more than \$1.8 million in alleged overcharges for Government purchases of nickel.

During the July-December 1963 period, the Department of Agriculture negotiated 28 barter contracts for strategic and critical materials valued at \$66.1 million. Of the \$66.1 million barter contracts in this period, \$58.1 million were basically bilateral transactions with India and Brazil where materials were accepted instead of additional foreign currency, as set forth in Recommendation No.

6 of the Executive Stockpile Committee's Report on The Barter Program, as approved by the President, September 20, 1962. By comparison, 7 contracts, valued at approximately \$13.9 million, were negotiated in the January-June 1963 period and 5 contracts, valued at approximately \$1.9 million, were negotiated during the July-December 1962 period.

During the reporting period, a total of approximately 600,000 short tons of material, with an acquisition cost of \$53 million, was transferred to the Supplemental Stockpile from the CCC inventory.

DISPOSAL PROGRAM ACTIVITIES

During the six months period ending December 31, 1963, OEP authorized six new disposal programs developed by GSA and concurred in by all interested agencies in accordance with the provisions of Defense Mobilization Order V-7, revised and amended. The disposal programs included manganese ore, titanium sponge (3), copper, and low grade chromite concentrates. A summary of these actions is listed below.

August 7—Manganese Ore, Subspecification Grade.—250 short tons were authorized to be released from the National Stockpile stored at Philipsburg, Montana. This subspecification grade material is in the form of large lumps. It is the remaining portion of about 58,000 long dry tons of manganese ore transferred to the National Stockpile in 1946. The possibility of treating these large lumps to produce a commercially usable product has been explored and determined to be uneconomical. Action toward the legal abandonment of this material is being initiated. As of the end of the reporting period, notice of disposition had not been published in the Federal Register.

August 29—Titanium Sponge, Electrorefined.—665 pounds were authorized to be released from the DPA inventory for use in a research program conducted by the Department of Metallurgy and Materials Sciences of New York University.

September 6—Copper.—An additional 10,000 short tons were authorized to be released from the DPA inventory for the direct use of Government agencies. As of December 31, 1963, cumulative sales totaling 34,138 short tons of copper had been made to Government agencies, principally to the Bureau of the Mint for coinage purposes and to the Department of Defense.

November 5—Titanium Sponge, Electrorefined.—1,350 pounds were authorized to be released from the DPA inventory for continuance of a research project at the U.S. Naval Research Laboratory.

November 27—Titanium Sponge, Sodium Reduced.—30,000 pounds were authorized to be released from the DPA inventory to cover requirements in support of a Navy prime contract pending availability of material through commercial channels.

December 31—Chromite, Low Grade.—900,000 short tons were authorized to be released from the DPA inventory stored at Nye, Montana to be

used for direct and indirect Government use, as payment-in-kind for services in upgrading stockpile materials, and for foreign aid programs. Commercial sales are to be withheld until market conditions have improved.

Additional Disposal Plans

Also during the reporting period, OEP requested GSA to develop disposal plans for the sale of twenty materials from the National Stockpile, Defense Production Act inventory, and the Supplemental Stockpile. The materials consist of odd lots of nonspecification grade items, or materials held in Government inventories without stockpile objectives as follows:

Commodity	Unit	Quantity
NATIONAL STOCKPILE		
* Asbestos, crocidolite (soft)	ST	1,567
Bismuth alloy.....	Lb.	36,580
* Copper base alloy (cupro-nickel).....	ST	366
* Diamond dies (large).....	Pcs.	355
* Nickel (in fabricated forms)	Lb.	50,000
* Palladium (miscellaneous forms).....	Oz.	10,590
Rhodium.....	Oz.	618
Rutile (nonspecification grade).....	ST	2,841
* Zinc (engraving plates).....	Lb.	221,087
Jewel bearings.....	Pcs.	14,715,973
* Tantalum scrap and foil.....	Lb.	23,737
* Lead (castings).....	Lb.	46,800
* Punch mica.....	Lb.	220,230
* Copper scrap.....	ST	165
DEFENSE PRODUCTION ACT INVENTORY		
* Mica skimmings.....	Lb.	14,653
* Burned titanium sponge.....	Lb.	201,000
SUPPLEMENTAL STOCKPILE		
* Chromium metal.....	Lb.	33,552
* Fluorspar, acid grade (nonspecification grade).....	ST	4,548
* Iodine (nonspecification grade).....	Lb.	707
* Silicon Carbide.....	ST	51

*Sixteen materials were authorized for disposal by OEP in February 1964. The remaining four are pending.

As of December 31, 1963, cumulative sales commitments of surplus materials negotiated by GSA totaled \$627.8 million and covered the disposal of 73 materials. Of this total, 55 materials were from the National Stockpile, 17 from the DPA inventory, and one (tin) from the Federal Facilities Corporation inventory. During July-December 1963, sales commitments amounted to \$67.2 million. Of this amount, disposals from the National Stockpile totaled \$52.8 million, and disposals from the Defense Production Act inventory accounted for \$14.4

million. Major disposals during this period were: rubber, \$20.8 million; tin, \$18.2 million; aluminum, \$12.1 million; cadmium, \$4.6 million; coconut oil,

\$4.1 million; and feathers and down, \$2.1 million. A list of the materials sold during July-December 1963 is shown on the following table.

Disposal of Strategic Materials

July-December 1963

Material	Unit
NATIONAL STOCKPILE INVENTORY:	
Brass scrap.....	ST
Cadmium.....	Lb.
Castor oil.....	Lb.
Coconut oil.....	Lb.
Feathers and down.....	Lb.
Kyanite.....	SDT
Magnesium ingots.....	ST
Nickel oxide powder.....	Lb.
Palm oil.....	Lb.
Quartz crystals, crude.....	Lb.
Quinidine.....	Oz.
Rubber.....	LT
Shellac.....	Lb.
Tin.....	LT
Vegetable tannin extract, chestnut.....	LT
Vegetable tannin extract, quebracho.....	LT
Zirconium ore, zircon.....	SDT
Total National Stockpile.....
DEFENSE PRODUCTION ACT INVENTORY:	
Aluminum.....	ST
Cryolite, synthetic.....	ST
Lead.....	ST
Mica.....	Lb.
Nickel.....	Lb.
Palladium.....	Tr.oz.
Titanium sponge.....	ST
Total DPA.....
Grand total.....

Source: General Services Administration.

Notes on Strategic and Critical Materials

ALUMINUM

Of the 135,000 short tons of aluminum authorized for disposal from the DPA inventory, 26,650 short tons were sold during this period. Total sales to date amount to 51,199 short tons, all of which were made on an unrestricted basis. No sales have been made on the 12,500 short tons set aside for firms qualifying as small business concerns. The next offerings of aluminum are scheduled for June 1964, at which time 27,500 short tons will be offered on an unrestricted basis and 6,250 short tons as a set-aside for firms qualifying as small business concerns.

BRASS SCRAP

The balance of 394 short tons of brass scrap of the 520 tons authorized for disposal from the National Stockpile was sold for \$191,561.

CADMIUM

Of the 2 million pounds of cadmium authorized for disposal from the National Stockpile under Public Law 88-8, 1,699,300 pounds were sold during the period at a sales value of \$4,576,892. The total quantity disposed of to date amounts to 1,999,300 pounds. Although this disposal contributed substantially to the available supply, cadmium is still reported to be in short supply.

CASTOR OIL

Two offerings of castor oil from the National Stockpile were made during July-December 1963, one for approximately 1 million pounds and one for approximately 5 million pounds. Four contracts were executed for a total of 5,712,840 pounds at a total dollar value of \$801,658. Since the completion of the disposal plan for castor oil, a total of 34,812,960 pounds has been sold. The delivery of 5 million pounds of sebacic acid to the National Stockpile, which is the quantity established as the maximum objective, was completed in December 1963.

COCONUT OIL

Disposal of stockpile coconut oil has been completed except for one remaining tank of approximately 3 million pounds. A bid opening for this quantity was scheduled for January 14. During the reporting period, a total of 35,124,500 pounds in the National Stockpile was sold for a dollar value of \$4,139,604.

COPPER

No additional transfers of copper were made to other Government agencies during the reporting period. As of December 31, 1963, a total of 15,090 short tons remained available for direct use or for transfer to other Government agencies. The annual requirements for the Bureau of the Mint have been estimated at approximately 12,500 short tons.

CORDAGE FIBERS

There was no rotation of cordage fibers during the period. The study of fiber objectives and fiber rotation requirements initiated in fiscal year 1963 was not completed by the end of December.

CRYOLITE, SYNTHETIC

During this period, 7,678 short tons of synthetic cryolite in the Defense Production Act inventory were sold for \$1,138,456. This quantity represents the balance of this material stored in a commercial warehouse which, under the sales agreement, will be evacuated by June 30, 1965.

FEATHERS AND DOWN (WATERFOWL)

Public Law 88-154 was enacted on October 17, 1963 and authorized disposal of 5.8 million pounds of feathers and down. Due to conditions prevailing in the industry, no commercial sales will be undertaken at this time. Arrangements have been completed with the Department of Defense for transfer of 759,675 pounds of feathers and down from the National Stockpile, valued at \$2,112,178, for use in sleeping bags. Additional transfers to that Department and other Government agencies are planned.

KYANITE

Disposal sales of 476 short tons of this material were made from the National Stockpile for \$7,140.

LEAD

During the report period, 4,368 short tons of lead from the Defense Production Act inventory were disposed of through sales to other Government agencies, primarily the Navy, for use as submarine ballast. On December 31, only 86 short tons were available for disposal.

MAGNESIUM

Of the 12,500 short tons of magnesium authorized for disposal from the National Stockpile, 2,280

short tons were sold during the period for \$1,415,-109. Offers to sell 700 short tons of the material on a sealed bid basis are being made at intervals of 60 days.

MICA, MUSCOVITE, BLOCK

During the period, 407 pounds of high quality mica at a sales value of \$8,098 were sold from the Defense Production Act inventory to mica fabricators having a requirement for this type of mica for an urgent national defense related use.

NICKEL

Of the 245,000 pounds of electrolytic nickel disposed of from the Defense Production Act inventory during the period, 240,000 pounds were transferred to the Bureau of the Mint, and the balance of 5,000 pounds was for use in connection with AID programs. The Mint's current requirements for electrolytic nickel are estimated at 650 short tons per year. Sales of nickel oxide powder amounted to 53,960 pounds.

PALLADIUM

Sales of palladium during the period amounted to 7,884 troy ounces, which was the quantity authorized for disposal from the Defense Production Act inventory, at a sales value of \$178,356.

PALM OIL

During the period, a total of 1,956,806 pounds of palm oil was sold from the National Stockpile for a total contract value of \$149,206.

QUARTZ CRYSTALS

Disposal sales of 84,883 pounds of this material were made from the National Stockpile for \$125,269. Of this amount, 1,100 pounds were sold to the Department of Defense for its direct use.

QUINIDINE

During the period, a total of 85,000 ounces of quinidine from the National Stockpile was sold for \$58,129.

RUBBER

From July-December, 39,404 long tons of surplus rubber from the National Stockpile were sold at a contract value of \$20,825,737. Sales during the calendar year 1963 totaled 80,423 long tons at a contract value of \$44,774,835. This represents the largest amount of surplus rubber sold during any

calendar year since the disposal program began operation in October 1959.

The OEP efforts to encourage the use of Government-owned surplus rubber in the Government procurement programs and the foreign aid operations of the Department of Defense and AID have proven successful and will be continued. During this report period, 13,480 long tons of surplus rubber were used by the Department of Defense and AID. It is expected that this amount will increase. The rubber used in these programs serves a dual purpose since it reduces the amount of the surplus and also contributes to the balance-of-payments problem.

Since disposal commenced in October 1959, 267,059 long tons of surplus rubber have been sold at a contract value of \$183,257,424.

SHELLAC

During the report period, 179,252 pounds of shellac were sold from the National Stockpile at a total sales value of \$29,528.

TIN

Of the 6,856 long tons of pig tin disposed of during the period from the National Stockpile, 5,980 long tons were sold to industry, 876 long tons were transferred for Government use. Effective December 23, 1963, weekly offerings of tin were increased from 400 long tons to 600 long tons for the period ending March 31, 1964.

On June 21, 1962, the Congress authorized the sale of 50,000 long tons of tin from the National Stockpile. From the date of the first offering, September 12, 1962, through December 31, 1963, total sales committed have amounted to 11,995 long tons valued at \$31 million.

TITANIUM SPONGE

During the report period, 38,000 pounds of titanium sponge from the Defense Production Act inventory were sold to industry and 2,000 pounds were transferred for Government use.

VEGETABLE TANNINS

During July-December 1963, a total of 125 long tons of chestnut tannin extract from the National Stockpile was sold for use on Government contracts. The total sales value was \$35,000. A total of 600 long tons of quebracho from the National Stockpile was sold for use on Government contracts for a sales value of \$100,800 during the period.

Activities of the General Services Administration Relating to Strategic and Critical Materials

The General Services Administration is charged with the general operating responsibility, under policies set forth by OEP, for stockpile management including (1) the purchasing and making of commitments to purchase, transfer, rotate, and upgrade metals and minerals, and other materials for Government use and resale for defense purposes; (2) the expansion of productive capacity through supply contracts, including the installation of Government-owned equipment, such as machine tools, in privately-owned facilities; and (3) the provision for the storage, maintenance, and disposal of all strategic materials held in Government inventories.

STORAGE AND MAINTENANCE

On December 31, 1963, strategic and critical materials were stored at 162 locations as follows:

<u>Type of Facility</u>	<u>As of 12/31/63</u>	<u>Net change in last 6 months</u>
Military depots.....	52	0
GSA depots.....	24	0
Other Government-owned sites	9	-1
Industrial plant sites.....	39	0
Leased commercial sites.....	16	0
Commercial warehouses.....	22	-2
Total.....	162	-3

As of the end of December 1963, approximately 51.7 million tons of materials were stored at these facilities.

During the reporting period, 329,000 tons of materials were received into storage. This is a substantial drop from past six-month periods, when more than one million tons were received, and results from the decrease in CCC barter contracting.

Continued progress was made in reducing commercial storage of strategic materials. A total of 12,952 tons of rubber and cryolite was removed from commercial warehouses on disposal sales programs. This action completely evacuated two commercial warehouses, reduced the inventory in eight others, and reduced annual commercial storage charges by \$91,000.

Progress was also made in the evacuation of the warehouse at the GSA/DMS Buffalo Depot. There were 35,000 tons of galvanized-drummed materials and bulk ores transferred to open storage; 3,536 tons were moved to another GSA depot, and 666 tons of rubber and tannin extract were shipped out under disposal sales programs. The evacuation of this warehouse will result in annual savings of \$253,000 in recurring operating costs, and will avoid the necessity for major roof rehabilitation at a cost of \$1,440,000.

The GSA Philadelphia Depot, which has been used for a number of years for the storage of nickel oxide originating under the Nicaro Nickel Program, was completely evacuated in July.

New preservation and maintenance projects totaling 89 were authorized during the period, and 134 previously authorized projects were completed.

Activities of the Department of Commerce Relating to Strategic and Critical Materials

The Department of Commerce participates in activities leading to OEP determinations of which materials are strategic and critical and quantities and qualities which shall be stockpiled. The Business and Defense Services Administration, Department of Commerce, prepares estimates of essential civilian and war-supporting requirements for strategic materials in a mobilization period, a basic element in determining stockpile objectives.

ESTIMATES OF ESSENTIAL CIVILIAN AND WAR-SUPPORTING REQUIREMENTS

The principal procedure for estimating essential civilian and war-supporting requirements involves an analysis of each major end-use item containing significant quantities of the material to be stockpiled. Recent trends in usage are reviewed, prospective technological developments are considered, and the essentiality of the item or of the use of the material in the item is determined. The extent to which wartime production of the item would parallel previously determined wartime production levels of the category of which it is a part is then evaluated. These factors then become the basis for estimating mobilization requirements for the material for the given end-use item. Industry surveys are made periodically to determine the accuracy of factors used in the estimates. Studies of the following materials being stockpiled, or considered for stockpiling, were completed during the reporting period.

Antimony
Asbestos, amosite
Asbestos, chrysotile
Bauxite, metallurgical grade, Jamaica
Bauxite, metallurgical grade, Surinam
Cadmium
Celestite
Chromite, chemical grade
Chromite, refractory grade
Cordage fibers, abaca (revision)
Cordage fibers, sisal (revision)
Cordage fibers, hennequen¹
Diamond dies
Iodine
Kyanite
Manganese ore, battery grade, natural
Manganese ore, battery grade, synthetic
Manganese ore, chemical grade A
Manganese ore, chemical grade B
Manganese ore, metallurgical grade
Mica, muscovite block
Mica, muscovite film
Mica, muscovite splittings

Mica, phlogopite splittings
Pyrethrum
Quartz crystals
Rare earths
Rubber
Rutile
Silk, noils
Silk, raw
Talc
Tantalum
Titanium¹
Tungsten
Vegetable tannins--
Chestnut (revision)
Quebracho (revision)
Wattle (revision)

¹Not a stockpile item--reviewed for possible stockpiling.

RECOMMENDATIONS REGARDING DISPOSAL PROGRAMS

Based on evaluation of the markets and consultation with industry, as appropriate, recommendations regarding four disposal programs and six odd lot sales were submitted. In addition, recommendations for the use of seven materials as payment-in-kind for upgrading stockpile items were prepared. The following materials were involved:

<u>Disposal Programs</u>	<u>Use as Payment-in-Kind</u>
Chromite, subspecification (revision)	Tungsten concentrates
Rubber (additional)	Cobalt
Tin (additional)	Ferronickel
Tungsten ores and concentrates	Columbite
	Tantalite
	Copper cathodes
	Bismuth

Miscellaneous Odd Lots

Chromium metal
Copper base alloys
Cupronickel ingots
Iodine
Mica, phlogopite block and film
Nickel, fabricated forms

RECOMMENDATIONS ON PURCHASE AND ACCEPTANCE SPECIFICATIONS AND SPECIAL INSTRUCTIONS

Under the general guidance of OEP and in consultation with interested departments and agencies and with the advice of industry, during July-December 1963, 15 revised National Stockpile Purchase Specifications and 11 revised Special Instruc-

tions were issued by the Business and Defense Services Administration of the Department of Commerce.

Purchase Specifications control the quality of material which may be currently acquired, their packaging and other requirements. In recent years, the trend in stockpile specifications has been in the direction of limiting acquisitions to single higher grades, or in the issuance or revision of specifications for upgraded forms of material. The upgraded materials specifications require substantially continuous review since many of them represent very high quality products which industry is constantly improving. Examples of revised specifications stemming from improved technology, listed in Table 1 below, are columbium, tantalum, sebacic acid, and oxygen free copper.

Stockpiling for the long-term requires a contin-

uous search for better packaging improved methods of identification, and more efficient handling of large volumes of material. These efforts are reflected, as shown in the table, in the specifications for asbestos, columbium, tantalum, molybdenum, and iodine. Efforts to revise customary industry practice in packaging so that long-term storage objectives are accomplished are not always immediately successful, but surveillance and study for potentially acceptable improvement continues. The problem of repackaging tannin extracts, generally acquired in burlap bags, has been under study by the Packaging Subcommittee of the Interdepartmental Stockpile Storage Committee since early 1963, but no economical alternative has been found to the use of burlap bags for overbagging the original bags which, after many years of storage, now show deterioration.

Table 1
Revised National Stockpile Purchase Specifications
Issued July 1-December 31, 1963

Material	Date issued	Significant changes
Amosite, asbestos.....	December 15, 1963	Packaging and marketing
Cadmium.....	December 2, 1963	Shapes limited to balls
Chromite, refractory.....	December 4, 1963	Chemical, physical and testing
Ferrochromium, low carbon.....	July 12, 1963	Physical and tags
Ferrochromium, high carbon.....	July 15, 1963	Physical
Columbium, commercial.....	July 12, 1963	Packaging
Columbium, carbide powder.....	September 3, 1963	Packaging
Ferrocolumbium.....	September 5, 1963	Tags
Copper, all except OFHC.....	December 12, 1963	Reissued as separate specification
Copper, oxygen-free, high conductivity..	December 11, 1963	Chemical and physical
Fluorspar, metallurgical.....	December 2, 1963	Chemical, one grade
Iodine.....	August 15, 1963	Packaging
Molybdenum.....	July 15, 1963	Packaging
Sebacic acid.....	November 6, 1963	Chemical and testing
Tantalum carbide powder.....	September 3, 1963	Packaging

Special Instructions are media for providing a diverse number of interrelated program instructions in a single document. They identify, among other things, the current purchase specifications; the types or grades of material which may have been previously suitable for stockpiling; the grades in inventory which may be credited to objectives and formulae related thereto; the proportionate distribution of objectives by type, grade, or form, and background information on storage, security, identification, and maintenance. Table 2, which follows, lists the Special Instructions recently revised, generally to take into account changes in Purchase Specifications. The two significant revisions were for cadmium and cordage fibers. The cadmium Instruction was revised to establish the ball shape of cadmium as the desired stockpile form. The rotation limits for abaca and sisal were established in the new Special Instructions at a maximum of seven and nine years, respectively.

Table 2
Revised Special Instructions for Stockpiling
Issued July 1-December 31, 1963

Material	Date Issued
Cadmium.....	December 2, 1963
Ferrochromium.....	July 11, 1963
Columbium minerals.....	July 10, 1963
Columbium, commercial grade.....	July 15, 1963
Columbium, carbide powder.....	October 3, 1963
Cordage fibers.....	December 6, 1963
Molybdenum.....	July 15, 1963
Sebacic acid.....	November 6, 1963
Tantalum minerals.....	July 12, 1963
Tantalum, capacitor grade.....	July 11, 1963
Tantalum, carbide powder.....	October 4, 1963

Activities of the Department of Agriculture Relating to Strategic and Critical Materials

EXPANSION OF DOMESTIC SOURCES

The Department of Agriculture has continued its research concerned with the development of domestic sources of the supply of certain strategic and critical agricultural commodities or substitutes.

Cordage Fibers

Kenaf.—Kenaf yield trials were conducted at four locations during the year. Results of a commercial trial planting of kenaf for use as a paper pulp extender were encouraging.

The field harvester-ribboner currently has a capacity of about 1-1/2 acres or 2,000 to 2,500 pounds of dry fiber per hour. The capacity of the cleaner-washer can be increased to match the harvester. A fiber production unit composed of these machines should be able to care for a planting up to 500 acres in size. The washing equipment has recently been shipped to Guatemala for commercial field testing.

Sansevieria-S. trifasciata-deserti hybrids have demonstrated conclusively satisfactory cold tolerance and regrowth. Second regrowth harvest of the F₁ diploid hybrids are significantly higher than first regrowth and original harvests. The highest yielding variety, "Florida H-13," yielded 6,713 pounds per acre in 1963, compared with 4,988 pounds per acre in 1961 and 2,152 pounds per acre in 1959.

"Florida H-13" was officially released and planting stock made available to potential producers. Preliminary tests with newly developed hybrid varieties indicate they are well adapted to mechanical harvesting.

The experimental harvester-decorticator is being redesigned to eliminate bottlenecks in the flow of leaves. The new design will provide self-propulsion and power steering. Extensive use of hydraulic power is planned.

Oils

Castorbean breeding and production research has been concerned largely with harvesting experimental trials, cleaning seed, and summarization of data. Critical evaluation of 1963 trials is not yet available.

Following construction modifications, the castorbean harvesting and drying equipment was used in the Plainview, Texas area during the harvesting season. Changes in the combine equipment attachment include improvements in header, clean-

ing systems, and conveyor. The present design should handle the crop faster and accommodate closer space rows.

Interest in growing castorbeans has increased in more northern areas. Because of the shorter growing season, special equipment has been designed for use in harvesting castorbeans that have not reached maturity. Special hulling and drying equipment is being tested in Nebraska and Kansas.

Drug Plant Seed

Following is a listing of seeds held in safe storage, sufficient to insure minimum emergency production requirements:

Atropa Belladonna.—16.4 pounds; germination 20 to 95 percent; sufficient to plant 200 to 400 acres.

Digitalis Lanata.—6.8 pounds; germination 60 to 89 percent; sufficient to plant 100 to 200 acres.

Digitalis Purpurea.—136 pounds; germination 71 and 72 percent; sufficient to plant 1,000 to 2,000 acres.

Papaver Somniferum.—(opium poppy) 564 pounds; germination 95 to 100 percent; sufficient to plant 1,000 to 2,000 acres.

BARTER ACTIVITIES

From July through December 1963, the Commodity Credit Corporation negotiated 53 barter contracts for strategic and other materials valued at approximately \$111.9 million. Of this amount, \$66.1 million represented contracts for strategic materials bartered for during this reporting period. These were mica, ferromanganese, beryl ores and concentrates, asbestos, and manganese metal, electrolytic. The remaining \$45.8 million was procurement for other agencies (\$25.3 million for the Department of Defense, \$8.5 million for AID, and \$12.0 million represents the conversion of an AEC dollar contract to barter). By comparison, 27 contracts valued at approximately \$29.6 million were negotiated during the January-June 1963 period and 11 contracts valued at \$9.8 million were negotiated during the July-December 1962 period.

Agricultural commodity exports by contractors in fulfillment of barter contracts with the CCC totaled approximately \$45.2 million for this reporting period. Strategic and other materials, valued at approximately \$1,507.6 million, have been delivered under barter contracts from July

1954 through December 1963, of which materials worth approximately \$38.8 million were delivered during this report period.

Cumulative transfers to stockpile since July 1954 have totaled approximately \$1,366.5 million--\$151.5 million to the National Stockpile and \$1,215.0 million to the Supplemental Stockpile. (This does not include approximately \$71 million, previously carried in the cumulative transfer total, which actually represented transfers that occurred prior to the passage of Public Law 480.)

CCC barter is being used successfully to substitute payment in agricultural commodities for expenditures abroad that would otherwise be made by various U.S. government agencies under existing contracts, thereby bringing direct benefits to our balance of payments position. One such dollar contract conversion to barter arranged during this period involved substituting additional exports of agricultural commodities for payment of \$12 million to the Republic of South Africa to cover deliveries of uranium to the United States. As an inducement to accomplishment of this con-

version to barter, CCC agreed to accept asbestos valued at \$8 million for transfer to the Supplemental Stockpile. Payment for the asbestos was in the form of additional wheat exports to the Republic of South Africa. The net result is a balance-of-payments assist up to \$12 million.

TRANSFERS FROM STOCKPILE FOR DISPOSAL

In 1962 all National Stockpile extra long staple cotton was transferred to CCC--47,518 bales of domestic cotton and 123,000 bales (running) of Egyptian and Sudanese cotton.

The domestic cotton was added to CCC's inventory, resulting in a total of 53,740 bales. Under a CCC sales program 310 additional bales have been sold since August 1, 1963, reducing this inventory to 46,890 bales.

The foreign-grown portion of the cotton is being disposed of through an export sales program. Cumulative sales under the program have totaled 15,438 bales, reducing the inventory to approximately 107,000 bales.

Activities of the Department of the Interior Relating to Strategic and Critical Materials

The Department of the Interior has the responsibility for the management, conservation, and adequate development of the Nation's natural resources to meet the requirements of national security and an expanding national economy. The Department assists the Office of Emergency Planning in formulating and carrying out programs for the stockpiling of critical materials. The Department of the Interior conducts research in exploration, mining, beneficiation, and metallurgy and compiles information on production and consumption for use in stockpiling planning. The Department also provides advice and recommendations regarding purchase and acceptance specifications and special instructions for stockpiling, storage procedures, and stockpile disposal programs.

The Department is responsible for preparedness programs covering electric power, petroleum and gas, solid fuels and minerals and conducts resource-requirements studies in order to identify problem areas, develop recommendations and programs for the maintenance of a sufficient mobilization base. The Department also administers programs to encourage the exploration, development, and mining of minerals and metals for emergency purposes.

ESTIMATES OF SUPPLY

During the period supply projections were developed according to OEP scheduling by specialists of the Department on the metals and minerals in the stockpile, or under consideration for stockpiling for a conventional war emergency. From July through December, 24 studies were completed and forwarded for consideration by the Interdepartmental Commodity Advisory Committee. Work was under way on 8 others scheduled for completion in early 1964.

BAUXITE

The Department of the Interior made an analysis of the feasibility of expanding production and use of domestic bauxite resources in an emergency to assure a continuing adequate supply of metallurgical grade alumina, and reduce dependence on commercial grade imported bauxite.

BERYLLIUM

The Department of the Interior, through the Bu-

reau of Mines, continued its widespread study of potential domestic beryllium resources and the extensive research on concentration and recovery of disseminated beryl and other beryllium minerals from submarginal deposits, extraction of beryllium oxide from various mineral ores and concentrates, preparation of high-purity beryllium from its oxide and chloride, methods to electro-refine beryllium metal, and techniques for casting and forming beryllium shapes.

Laboratory tests were made to determine acid requirements for leaching beryllium from Spor Mountain, Utah ore, and it was found that the examined ores required about 600 pounds of sulfuric acid per ton to extract 95 percent of the beryllium.

CADMIUM

As a means of developing better industry data to guide stockpile disposals, the Bureau of Mines initiated mandatory monthly canvasses of the producers of cadmium and of the importers of cadmium metal and compounds. The new canvasses are in place of voluntary quarterly reporting by producers and are designed to give monthly data on production, shipments, stocks, and use of defense rated orders. In addition, cadmium consumers were requested to aid in developing a satisfactory method to conduct an annual consumer survey.

COPPER

Excellent matte-smelting characteristics were obtained by laboratory tests on non-pyritic smelting of copper. Pellets containing 30 percent copper as chalcocite, metallic copper, or mixtures of the two were used for the tests and elemental sulfur was the matte-forming ingredient. Matte produced during the tests had a higher copper content than that produced by usual smelting methods.

MERCURY

A prototype instrument using the atomic absorption principle for detecting mercury was tested under field conditions by the Geological Survey in Nevada. The instrument consists of a null-detecting amplifier, an analog-to-digital con-

verter, and an electronic counter. It is equipped with a self-contained power source, and is mounted in a vehicle suitable for operation in rough terrain. The analytical cycle requires about three minutes. The field tests indicated a usable sensitivity of 10 parts per billion mercury in solid matter.

HIGH-TEMPERATURE MATERIALS

The Department's semiannual evaluation of the technology and supply-demand situation of the elements that should be considered special-property materials for high temperature and other special applications was revised in October 1963.

Reports Dealing With Stockpile Material Issued by U.S. Geological Survey

July-December 1963

Maps

- MF-268 Geochemical and heavy mineral reconnaissance of the Kannapolis quadrangle, North Carolina, by Henry Bell, III. (copper, zinc, nickel)

Professional Papers

- 297-C Exploration for beryllium at the Helen Beryl, Elkhorn, and Tin Mountain pegmatites, Custer County, South Dakota, by M. H. Staatz, L. R. Page, J. J. Norton, and V. R. Wilmarth.
297-D Geology and pegmatites of the Fourmile quadrangle, Black Hills, South Dakota, by J. A. Redden. (beryllium, mica)
359 Economic geology of the Central City district, Gilpin County, Colorado, by P. K. Sims, A. A. Drake, Jr., and E. W. Tooker. (copper, lead, zinc)
475-A Geological Survey Research 1963--summary of investigations. Summary statements on mineral resource studies.

Bulletins

- 1098-C Comparison of geological, geophysical, and geochemical prospecting methods at the Malachite mine, Jefferson County, Colorado, by L. C. Huff. (copper)
1122-B Bedrock geology and asbestos deposits of the upper Missisquoi Valley and vicinity, Vermont, by W. M. Cady, A. L. Albee, and A. H. Chidester.
1122-G Geologic setting of the Hamme tungsten district, North Carolina and Virginia, by J. M. Parker, 3d. (tungsten)
1123-D Geology of the Dodgeville and Mineral Point quadrangles, Wisconsin, by J. W. Allingham. (zinc, lead)
1123-E Geology of the Platteville quadrangle, Wisconsin, by A. F. Agnew. (zinc, lead)
1135-B Oxidized zinc deposits of the United States. Part 2, Utah, by A. V. Heyl.
1141-H Geology of the Pinal Ranch quadrangle, Arizona, by N. P. Peterson. (copper, tungsten, molybdenum)
1141-K Geology of the Clark Fork quadrangle, Idaho-Montana, by J. E. Harrison and D. A. Jobin. (lead, copper)
1142-G Geology of the Red Devil quicksilver mine, Alaska, by E. M. Mackevett, Jr., and H. C. Berg.
1142-I Geology of some copper deposits in North Carolina, Virginia, and Alabama, by G. H. Espenshade.
1155 Contributions to economic deposits of Alaska. (nickel, copper, antimony, tungsten)
1162-B Geology of the Railroad mining district, Elko County, Nevada, by K. B. Ketner and J. F. Smith. (lead, copper, beryllium, rare earths)
1162-D Geology of the northern part of the Tenmile Range, Summit County, Colorado, by M. H. Bergendahl. (lead, copper, zinc, molybdenum)
1162-E Diamond-drilling exploration of the Beecher No. 3--Black Diamond pegmatite, Custer County, South Dakota, by J. A. Redden. (beryllium)
1182-C Selected bibliography of talc in the United States, by C. W. Merrill.

Reports Dealing With Strategic and Other Materials Issued by the Bureau of Mines

July-December 1963

Reports of Investigations

- 6216 Statistical Analysis of Churn-Drill and Diamond-Drill Sample Data From the San Manuel Copper Mine, Arizona.
- 6235 Water-Swelling Synthetic Fluormicas and Fluormontmorillonoids.
- 6243 Effect of Lead Deposits on Activity of Automotive Exhaust Catalysts.
- 6245 Low-Temperature Heat Capacities and Entropies at 298.15° K of the Sesquioxides of Scandium and Cerium. (rare earths)
- 6249 Studies on the Spectrochemical Analysis of Solutions: Use of Carrier-Precipitation and a Filter Electrode. (antimony, beryllium, zinc)
- 6253 Installation and Evaluation of Precast Mine Supports: A Progress Report. (principally lead-zinc)
- 6254 Vacuum Arc Melting and Casting of Copper.
- 6256 Radiotracer Studies of Cerium and Sulfur Distribution in Steel. (rare earth)
- 6258 Sulfatization of Manganiferous Carbonate Slates in a Fluidized Bed Reactor.
- 6259 Metallothermic Reduction of Yttrium Halides. (rare earth)
- 6262 Metallic Binders for Zirconium Diboride: Iron, Cobalt, and Nickel.
- 6263 Recovery of Lead and Zinc from Slimes.
- 6265 A Small Alumina Reduction Cell.
- 6268 Flotation of Kyanite-Quartzite Rock, Graves Mountain, Lincoln County, Georgia.
- 6277 Determination of Copper in Tungsten Metal and Tungstic Oxide..
- 6280 Extraction of Alumina From Ferruginous Bauxite by a Double-Leach Process.
- 6284 Modifications in Bomb Reduction of Vanadium Oxide.
- 6288 Recovery of Alumina From Anorthosite, San Gabriel Mountains, California. Using the Lime Soda Sinter Process.
- 6290 Methods for Producing Alumina From Clay. An Evaluation of a Potassium Alum Process.
- 6294 Solubility Characteristics of Monocalcium Aluminate.
- 6295 Thermodynamic Data for Magnesium Oxide (Periclase).
- 6301 Electrodeposition of Zinc.
- 6303 Electrodeposition Studies of Molybdenum, Tungsten, and Vanadium in Organic Solvents.
- 6308 Determination of Cobalt and Nickel in Tungsten by a Combined Ion Exchange X-ray Spectrographic Method.
- 6310 Chloridization of Galena and Sphalerite by Contact With Certain Chlorides. (lead)
- 6314 Fluorine Analyses. Control Method for Various Compounds.
- 6316 Thermodynamic Properties of Strontium Chloride and Strontium Fluoride From 0° to 300° K. (celestite)
- 6317 Fluidized-Bed Chlorination of Titaniferous Slags and Ores. (rutile)
- 6322 Acid Leaching of Beryllium Ore From Spor Mountain, Utah.
- 6324 Drillability Studies. Diamond Drilling.
- 6335 Two Hydrated Calcium Aluminates Encountered in the Lime-Soda Sinter Process.
- 6336 Laboratory Smelting of Copper Precipitator Dust.

Information Circulars

- 8196 Mineral Resources of the Malagasy Republic. (beryllium)
- 8201 Magnesium and Magnesium Compounds. A Materials Survey.

STATUS OF OBLIGATIONAL OPERATIONS

Under PL 117 and PL 520 for the National Stockpile

AS OF DECEMBER 31, 1963

AUTHORITY	APPROPRIATED FUNDS ^{a/}	AUTHORIZATIONS FOR		TOTAL OBLIGATIONAL AUTHORITY (CUMULATIVE) ^{d/}
		MAKING ADVANCE CONTRACTS ^{b/}	LIQUIDATING OUTSTANDING ADVANCE CONTRACTS ^{c/}	
Under PL 117 - 76th Congress				
PL 361 - 76th Congress, August 9, 1939	\$ 10,000,000	\$		\$ 10,000,000
PL 442 - 76th Congress, March 25, 1940	12,500,000			22,500,000
PL 667 - 76th Congress, June 26, 1940	27,500,000			70,000,000 ^{e/}
Under PL 520 - 79th Congress				
PL 663 - 79th Congress, August 8, 1946	100,000,000			100,000,000
PL 771 - 80th Congress, July 30, 1947	100,000,000	75,000,000		275,000,000
PL 785 - 80th Congress, June 25, 1948	225,000,000	300,000,000		800,000,000
PL 785 - 80th Congress, June 25, 1948	75,000,000		75,000,000	800,000,000
PL 119 - 81st Congress, June 23, 1949	40,000,000	270,000,000		1,110,000,000
PL 150 - 81st Congress, June 30, 1949	275,000,000	250,000,000		1,635,000,000
PL 150 - 81st Congress, June 30, 1949	250,000,000		250,000,000	1,635,000,000
PL 424 - 81st Congress, October 29, 1949	365,000,000			1,535,000,000
PL 759 - 81st Congress, September 6, 1950	240,000,000	125,000,000		1,660,000,000
PL 759 - 81st Congress, September 6, 1950	573,232,449 ^{f/}			2,625,000,000
PL 843 - 81st Congress, September 27, 1950	1,634,911,000			2,598,232,449
PL 911 - 81st Congress, January 6, 1951	590,216,500			4,433,143,449
PL 253 - 82nd Congress, November 1, 1951	200,000,000			5,023,359,949
PL 253 - 82nd Congress, November 1, 1951	203,979,000			5,023,359,949
PL 425 - 82nd Congress, July 25, 1952				5,157,138,949
PL 176 - 83rd Congress, July 31, 1953				5,127,138,949
PL 428 - 83rd Congress, June 24, 1954				5,099,738,949
PL 663 - 83rd Congress, August 28, 1954	379,952,000 ^{h/}			5,479,690,949
PL 112 - 84th Congress, June 30, 1955	321,721,000 ^{i/}			5,801,411,949
PL 112 - 84th Congress, June 30, 1955	27,400,000			5,801,411,949
PL 844 - 85th Congress, August 28, 1958	3,000,000			5,804,411,949
Rescinded by PL 255 - 86th Congress, September 14, 1959	-58,370,925 ^{j/}			5,766,041,026
PL 626 - 86th Congress, July 12, 1960	22,227,000 ^{k/}			5,788,278,026
PL 141 - 87th Congress, August 17, 1961	16,682,510 ^{l/}			5,788,278,026
PL 741 - 87th Congress, October 3, 1962	8,759,887 ^{m/}			5,797,037,913
PL 215 - 88th Congress, December 19, 1963	73,975,000			5,871,012,913
Total PL 117 and 520	55,887,635,423	21,070,000,000		55,887,635,423

SOURCE:
GENERAL SERVICES ADMINISTRATION

^{a/} Congressional appropriations of funds for stockpiling purposes.

^{b/} Congressional appropriations of contracting authority for stockpiling purposes in advance of appropriation of funds.

^{c/} Congressional authorization to liquidate outstanding obligations and advance contract authority.

^{d/} Cumulative total of appropriated funds and advance contract authority, less authorization to liquidate outstanding advance contract.

^{e/} Excludes \$8,845,792 received from the sale of surplus materials for wartime consumption. Receipts were returned to Treasury, February 1948.

^{f/} Cancellation of advance contract authority to make contracts.

^{g/} Excludes \$24,404,921 transferred to operating expenses for rehabilitation of Government-owned material producing plants.

^{h/} Excludes \$46,000 transferred to Transportation and Public Utilities Service, GSA, and \$199,249,000 transferred to General Fund Receipts on June 27, 1956 - PL 622 - 84th Congress.

^{i/} As of June 30, 1959 this amount included cash of \$51,350,792 and receipts of \$6,070,131.

^{j/} Excludes \$430,000 transferred to other GSA funds for miscellaneous purposes.

^{k/} Excludes \$7,763,000 transferred to other GSA funds for miscellaneous purposes.

^{l/} Appropriation of \$40,000,000 to the National Stockpile Fund, transferred to Office of Administration, GSA and \$13,294,790 transferred to General Fund Receipts.

^{m/} Appropriation of \$24,979,000 to the National Stockpile Fund, transferred to Office of Administration, GSA and \$13,294,790 transferred to General Fund Receipts.

^{n/} Excludes receipts from occasional sales.

TOTAL OBLIGATIONS AND EXPENDITURES OF STOCKPILING FUNDS

Under PL 117 and PL 520 for THE NATIONAL STOCKPILE

CUMULATIVE AND BY FISCAL PERIOD THROUGH DECEMBER 31, 1963

Fiscal Period	OBLIGATIONS INCURRED		EXPENDITURES	
	Net Change By Fiscal Period	A/ Cumulative As of End of Period	By Fiscal Period	B/ Cumulative As of End of Period
Prior to Fiscal Year 1948	\$ 123,871,685	\$ 123,871,685	\$ 66,330,731	\$ 66,330,731
Fiscal Year 1948	252,901,411	376,773,096	82,907,575	149,238,306
Fiscal Year 1949	459,766,881	836,539,977	304,486,177	453,724,483
Fiscal Year 1950	680,427,821	1,516,967,798	440,834,970	894,559,453
Fiscal Year 1951	2,075,317,099	3,592,284,897	655,537,199	1,550,096,652
Fiscal Year 1952	948,117,547	4,540,402,444	844,683,459	2,394,780,111
Fiscal Year 1953	252,375,163	4,792,777,607	906,158,850	3,300,938,961
Fiscal Year 1954	116,586,681	4,909,364,288	644,760,321	3,945,699,282
Fiscal Year 1955	321,799,833	5,231,164,121	801,310,094	4,747,009,376
Fiscal Year 1956 C/	251,692,667	5,482,856,788	382,011,786 C/	5,129,021,162 C/
Fiscal Year 1957	190,000,109	5,672,856,897	354,576,558	5,483,597,720
Fiscal Year 1958	54,473,250	5,727,330,147	173,753,997	5,657,351,717
Fiscal Year 1959	38,710,879	5,766,041,026	65,260,098	5,722,611,815
Fiscal Year 1960	19,859,290	5,785,900,316	49,227,142	5,771,838,957
Fiscal Year 1961	29,082,919	5,814,983,235	33,325,431	5,805,164,388
Fiscal Year 1962	31,179,407	5,846,162,642	33,695,431	5,838,859,819
Fiscal Year 1963	17,414,900	5,863,577,542	22,104,176	5,860,963,995
Fiscal Year 1964 - First Half	7,185,748	5,870,763,290	7,970,565	5,868,934,560

A/ Figures are the sum of obligations incurred under PL 520, 79th Congress and PL 117, 76th Congress.
Final obligations under PL 117, 76th Congress were incurred in Fiscal Year 1949.

B/ Figures are the sum of expenditures under PL 520, 79th Congress and PL 117, 76th Congress.
Final expenditures under PL 117, 76th Congress were made in Fiscal Year 1951.

C/ 1956 and subsequent fiscal periods and cumulative expenditures are reported on an accrual basis.

SOURCE: GENERAL SERVICES ADMINISTRATION

EXPENDITURES OF STOCKPILE FUNDS, BY TYPE

(for the National Stockpile)

Cumulative and for First Half Fiscal Year 1964

Type of Expenditure	Cumulative Through June 30, 1963	Six Months Ended December 31, 1963	Cumulative Through December 31, 1963
Expenditures			
Gross Total	\$6,403,384,699	\$8,236,049	\$6,411,620,748
Less: Adjustment for Receipts from Rotation Sales and Reimbursements	542,420,704	265,484	542,686,188
Net Total	5,860,963,995	7,970,565	5,868,934,560
Material Acquisition Costs, Total	5,436,099,141	352,585	5,436,451,726
Stockpile Maintenance Costs, Total	369,290,954	5,969,107	375,260,061
Facility Construction Storage and Handling Costs	43,772,457	0	43,772,457
Net Rotation Costs	222,756,800	5,966,339	228,723,139
	102,761,697	2,768	102,764,465
Administrative Costs	49,145,486	1,078,139	50,223,625
Operations, Machine Tool Program	6,428,414	570,734	6,999,148

a/ Cumulative figures are the total of expenditures under PL 117, 76th Congress and PL 520, 79th Congress. Expenditures under PL 117 totaled \$70,000,000 of which \$55,625,237 was for materials acquisition costs and \$14,374,763 was for other costs. Final expenditures under PL 117 were made in FY 1951.

SOURCE: GENERAL SERVICES ADMINISTRATION